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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,501	02/04/2004	Kenkichi Hayashi	0649-0941P	1757

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EXAMINER

PETERSON, CHRISTOPHER K

ART UNIT	PAPER NUMBER
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2622

NOTIFICATION DATE	DELIVERY MODE
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11/05/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/770,501	Applicant(s) HAYASHI, KENKICHI	
	Examiner Christopher K. Peterson	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because the abstract contains two paragraphs. Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claims 1, 3 - 5, 7, and 8 are objected to because of the following informalities:

These claims cite "an LUT" should read "a LUT". Appropriate correction is required.

Response to Amendment

4. The Amendment After Non-Final Rejection filed on August 16, 2007 has been received and made of record. Examiner notes the corrections to the specification. Claims 1 - 8 are pending in this application.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 3, and 5 have been considered but are moot in view of the new ground(s) of rejection.

In regards to claims 1 and 3, the Examiner relied on the CPU 10 in Kutner (Col. 2, lines 57-64) as the table overwriter to overwrite an LUT written into the table storage area (RAM) with another LUT. Applicant respectfully submits that Kutner does not disclose the "overwriting step/table overwriter" as claimed in claims 1 and 3 respectively. Specifically, the CPU 10 in Kutner merely downloads and stores the calculated gamma corrected lookup values x into the lookup table memory circuit RAM based on the input digital variable "a" input into CPU 10. The Kutner device does not overwrite the LUT already stored in the table storage area with another LUT as specifically claimed. In contrast, the present invention has the feature of, inter alia, storing one of the LUTs for correcting gray-scale correction of a high-sensitivity digital signal, correcting gray-scale correction of a low-sensitivity digital signal, and a weighing LUT for signal synthesis, one at a time.

In regard to claims 1 and 3, the Applicant has amended the claims to include the limitation "an overwriting step of overwriting an LUT written into a table storage area

with another LUT, in accordance with a content of each of a plurality of processes executed to a first signal or a second signal; and a synthesizing step of performing a process corresponding to a content of the another LUT for the first signal or the second signal each time the LUT in the table storage area is overwritten and synthesizing the processed first signal and the second processed signal". The applicant argues that Kutner (US Patent 4,786,968) and Masaya (Japanese Patent 2001-008104) do not teach the limitation (pages 8 - 9). The Examiner agrees that Kutner and Masaya do not teach the limitation of overwriting a LUT with another, but the reference of Ota (US Patent # 4,987,426) does teach the limitation.

Specifically, noting the Ota reference, Col. 7, line 56 – Col. 8, line 34 cites the look-up table 5 is usually constituted by a RAM, and its content can be freely rewritten by a microcomputer and the like. For this reason, the Examiner believes that Ota does teach the limitation of newly amended claims 1 and 3, as will be set forth in further detail below. In regard to claims 2 and 4, the Applicant has amended the claims as amended claims 1 and 3. Therefore note the discussion above concerning the amended limitations of claims 1 and 3.

In regards to claim 5, the Applicant has amended the claim to include the limitation "second photoreceptor elements respectively **each** having a first photoreceptive area and a second photoreceptive area having different sensitivities". The applicant argues that Kutner (US Patent 4,786,968) and Masaya (Japanese Patent 2001-008104) do not teach the limitation (page 9). The Examiner agrees that Kutner and Masaya do not teach the limitation of each photoreceptor element having a first

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photoreceptive area and a second photoreceptive area, but the reference of Park (US Patent # 5,714,753) does teach the limitation.

Specifically, noting the Park reference, Fig. 4 and Col. 2, lines 45 – 53 cites the second photodiode 24 is smaller than the first photodiode 22. For this reason, the Examiner believes that Park does teach the limitation of newly amended claims 5, as will be set forth in further detail below. In regard to claims 6 - 8, the Applicant has amended the claims as amended claim 5. Therefore note the discussion above concerning the amended limitations of claims 5.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kutner (US Patent # 4,786,968) in view of Ota (US Patent # 4,987,426), and further in view of Masaya (Japanese Patent # 2001-008104).

As to claim 3, Kutner teaches a signal processor circuit comprising:

- a table storage area (lookup table 20), for storing an LUT (Col. 2, lines 43 - 45);
- a arithmetic operator (CPU 10), for performing arithmetic operation on a digital signal (digital video DIG. VID.) on the LUT (20) written into the table

storage area each time an LUT (20) is written into the table storage area (Col. 2, lines 57 - 64).

Kutner does not teach a table overwriter, for overwriting the LUT written into the table storage area with another LUT and a first and second digital signal and synthesizing the first digital signal and the second digital signal.

Ota teaches a table overwriter (microcomputer), for overwriting the LUT written into the table storage area with another LUT (Col. 7, line 56 – Col. 8, line 34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a microcomputer as taught by Ota to the lookup table system of Kutner, because the number of bits of the look-up table becomes smaller and no difficulty in correction exists, because there is no sharp inflection point (Col. 7, line 56 – Col. 8, line 34).

Masaya teaches a first and second digital signal (low and high sensitive video signal 14 and 12)(Para 0013) and synthesizing (52) the first digital signal and the second digital signal (Para 0022)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the first and second digital signal and synthesizes the first digital signal and the second digital signal as taught by Masaya to the lookup table system of Kutner, because a large dynamic range can be acquired by simple circuitry and a higher quality picture can be obtained (Para 0039).

As to claim 1, this claim differs from claim 3 only in that the claim 3 is an apparatus claim whereas claim 1 is a method. Thus method claim 1 is analyzed as previously discussed with respect to claim 3 above.

8. Claims 2 and 4, are rejected under 35 U.S.C. 103(a) as being unpatentable over Kutner (US Patent # 4,786,968) in view of Ota (US Patent # 4,987,426), and further in view of Masaya (Japanese Patent # 2001-008104) as applied to claim 1 and 3 above, and further in view of Utagawa (US Patent # 6,529,640).

As to claim 4, note the discussion above. Kutner in view of Ota and further in view of Masaya do not teach the limitation "weighting LUT". Utagawa teaches synthesizing (B6) the first digital signal and the second digital signal by using a weighting LUT for signal synthesis written into the table storage area (Col. 23, lines 48-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the weighting LUT as taught by Utagawa to the synthesizer of Kutner in view of Ota and further in view of Masaya, because an image with good resolution and less false color can be obtained (Col. 10, lines 23 - 34).

As to claim 2, this claim differs from claim 4 only in that the claim 2 is an apparatus claim whereas claim 2 is a method. Thus method claim 2 is analyzed as previously discussed with respect to claim 4 above.

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9. Claim 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kutner (US Patent # 4,786,968) in view of Ota (US Patent # 4,987,426), and further in view of Masaya (Japanese Patent # 2001-008104), and further in view of Park (US Patent # 5,714,753).

As to claim 5, note the discussion above. Masaya teaches an A/D converter circuit (16 and 18 of Fig. 1), which performs A/D conversion on a first analog signal (12) including a plurality of output signals output from the first photoreceptor devices (30H) and a second analog signal (14) including a plurality of output signals output from the second photoreceptor devices (30L) to generate a first digital signal (20) and a second digital signal (22)(Para 0018);

Kutner in view of Ota, and further in view of Masaya do not teach a first and second photoreceptor in each photoreceptor elements. Park (Fig. 3) teaches an imaging element, which includes a plurality of first photoreceptor elements (first photodiode 22) and second photoreceptor elements (second photodiode 24) respectively having a first photoreceptive area and a second photoreceptive area having different sensitivities (Col. 2, lines 37 - 53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a first and second photoreceptor in each photoreceptor elements as taught by Park to the synthesizer of Kutner in view of Ota and further in view of Masaya, because having two photodiodes in each pixel widens the dynamic range of the solid state imaging device (Col. 2, lines 3 - 8 of Park).

As to claim 6, Kutner teaches a controller (CPU 10), which generates the LUT based on a digital signal (digital variable) or the second digital signal and a memory (lookup table memory circuit (RAM)), which stores the LUT generated by the controller (10), wherein the table-overwriter (10) writes the LUT stored in the memory into the table storage area (lookup table 20) (Co1.2, lines 46 - 64).

10. Claims 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kutner (US Patent # 4,786,968) in view of Ota (US Patent # 4,987,426), and further in view of Masaya (Japanese Patent # 2001-008104), and further in view of Park (US Patent # 5,714,753 as applied to claim 5 and 6 above, and further in view of Utagawa (US Patent # 6,529,640).

As to claim 7, note the discussion above. Kutner teaches the LUTs are an LUT for gray-scale correction of the first digital signal, an LUT for gray-scale correction of the second digital signal (Col. 2, lines 46 - 51 of Kutner) and a weighting LUT for signal synthesis (Col. 23, lines 48 - 54 of Utagawa). Kutner teaches an input digital variable "a". Through this variable the CPU calculates the lookup values for the lookup table memory table (RAM).

As to claim 8, cites the additional limitation "written into the table storage area". Kutner teaches a table storage area (20)(Col. 2, lines 57 - 64).

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher K. Peterson whose telephone number is 571-270-1704. The examiner can normally be reached on Monday - Friday 6:30 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CKP

25 October 2007



NGOC-YEN VU
SUPERVISORY PATENT EXAMINER